ARITHMETIC.

Conducted by B. F. FINKEL, Springfield, Mo. All contributions to this department should be sent to him.

SOLUTIONS OF PROBLEMS.

50. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechanicsburg, Pennsylvania.

If A can walk to the city and ride back, he will require $m=5\frac{1}{4}$ hours; but if he walk both ways, he will require $n=7$ hours. How many hours will he require to ride both ways?

I. Solution by A. L. FOOTE, Middleburg, Connecticut.

Taking it for granted that he can walk or ride either way with equal facility, we find that he could walk to the city in $\frac{n}{2}=3\frac{1}{2}$ hours and can ride back in $m-\frac{n}{2}=5\frac{1}{4}-3\frac{1}{2}=1\frac{3}{4}$ and he can also ride to the city in $1\frac{3}{4}$ hours, so he will take $1\frac{3}{4}\times 2=3\frac{1}{2}$ hours. On any other supposition the problem is indeterminate.

II. Solution by H. C. WILKS, Murraysville, West Virginia, and J. F. W. SCHEFFER, A. M., Hagerstown, Maryland

A can walk up and walk back in $n=7$ hours. He can walk up and ride back in $m=5\frac{1}{4}$ hours.

$\therefore$ times of walking back and riding back differ by $n-m=1\frac{3}{4}$ hours.

Also times of walking round trip and riding round trip differ by $2(n-m)=3\frac{1}{2}$ hours. But he *walks* round trip in $n=7$ hours.

Hence he *rides* round trip in $n-2(n-m)=7-3\frac{1}{2}$ or in $2m-n=3\frac{1}{2}$ hours.

III. Solution by Professor P. S. BERG, Larimore, North Dakota.

To walk one way he will require $\frac{n}{2}$ hours. Hence to ride one way he will require $\left(m-\frac{n}{2}\right)$ hours, and to ride both ways he will require

$$2\left(m-\frac{n}{2}\right)=3\tfrac{1}{2} \text{ hours.}$$

IV. Solution by G. B. M. ZERR, A. M., Ph. D., Professor of Mathematics and Vice President in Texarkana College, Texarkana, Arkansas.

$\frac{n}{2}$ = number of hours to walk one way, and

$m-\frac{n}{2}=\frac{2m-n}{2}$ = number of hours to ride one way.

$\therefore 2\left(\frac{2m-n}{2}\right)=2m-n$ = number of hours to ride both ways.

But $m=5\frac{1}{4}$, $n=7$.

$\therefore 3\frac{1}{2}$ hours = required time.

This problem was also solved by *Professor COOPER D. SCHMITT*, ——, and the *PROPOSER*.